MATERIAL SAFETY DATA SHEET

1. SUBSTANCE AND SOURCE IDENTIFICATION

National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2320
Gaithersburg, Maryland 20899-2320

SRM Number: 2890
MSDS Number: 2890
SRM Name: Water Saturated 1-Octanol

Date of Issue: 04 February 2005

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Description: Standard Reference Material (SRM) 2890 is a solution of water saturated 1-octanol which is certified for its water content. A unit of SRM 2890 consists of five 5-milliliter ampoules, each containing approximately 2 mL of water saturated 1-octanol.

Substance: 1-Octanol

Other Designations: **1-Octanol** (n-octanol; octyl alcohol; 1-hydroxyoctane; n-octyl alcohol; octanol; heptyl carbinol)

2. COMPOSITION AND INFORMATION ON HAZARDOUS INGREDIENTS

Component: **1-Octanol**

CAS Number: 111-87-5

EC Number (EINECS): 203-917-6

SRM Nominal Concentration (mass %): > 95

EC Classification: Not determined.

3. HAZARDS IDENTIFICATION

NFPA Ratings (Scale 0–4): Health = 0 Fire = 2 Reactivity = 0

Major Health Hazards: Central nervous system depression.

Target Organs: Central nervous system.

Physical Hazards: Combustible liquid and vapor. Vapors are a flash back hazard.

Potential Health Effects

Inhalation: Inhalation (acute exposure) of 1-octanol may be irritating in high concentrations.

Skin Contact: Skin contact with 1-octanol may cause irritation. Skin absorption may occur. Repeated or prolonged exposure may cause dry skin and dermatitis due to defatting of the skin.

Eye Contact: Eye contact with 1-octanol may cause irritation.

Ingestion: Ingestion of 1-octanol may cause gastrointestinal effects and central nervous system depression. Symptoms of intoxication and aspiration may also occur.

Listed as a Carcinogen/ Potential Carcinogen:

Yes	No	
	X	In the National Toxicology Program (NTP) Report on Carcinogens.
	X	In the International Agency for Research on Cancer (IARC) Monographs.
	X	By the Occupational Safety and Health Administration (OSHA).

4. First Aid Measures

Inhalation: If inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration by qualified personnel. Obtain medical assistance if necessary.

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain immediate medical assistance.

Ingestion: If vomiting occurs, keep head lower than hips. If person is unconscious, turn head to side. Obtain immediate medial attention.

5. Fire Fighting Measures

Fire and Explosion Hazards: 1-Octanol is a moderate fire hazard. Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back.

Extinguishing Media: Use alcohol-resistant foam, dry chemical, carbon dioxide, or water spray.

Fire Fighting: Move container from fire area if it can be done without risk. **DO NOT** use high-pressure water streams which could scatter spilled material. Use water spray to cool containers until well after the fire is out and to discharge vapors. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus (SCBA).

Flash Point (°C): 81 (178 °F)
Method Used: Closed cup.

Autoignition Temp. (°C): Not available.

Flammability Class (OSHA): IIIA

Flammability Limits in Air
UPPER (Volume %): Not available.
LOWER (Volume %): Not available.

6. Accidental Release Measures

Occupational Release: Avoid heat, flames, sparks, and other sources of ignition. Reduce vapors with water spray. Collect small spilled material after absorbing with sand or other non-combustible material in an appropriate container for disposal. For large spills, stop leak if possible without personal risk.

Disposal: Refer to Section 13, "Disposal Considerations".

7. Handling and Storage

Storage: Store and handle in accordance with all current regulations and standards. Keep separated from incompatible substances. Subject to storage regulations U.S. OSHA 29 CRF 1910.106. Refer to SRM 2890 Certificate of Analysis for storage of SRM 2890.

Safe Handling Precautions: See Section 8, "Exposure Controls and Personal Protection".

8. Exposure Controls and Personal Protection

Exposure Limits: No occupational exposure limits established for **1-Octanol**.

Ventilation: Use local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Respirator: Under frequent use of heavy exposure, respiratory protection may be needed. Refer to the "NIOSH Guide to the Selection and Use of Particulate Respirators Certified under 42 CFR 84" for selection and use of respirators certified by NIOSH.

Eye Protection: Wear safety goggles. **DO NOT** wear contact lenses in the laboratory. An eye wash station should be readily available near areas of use.

Personal Protection: Wear appropriate protective clothing and chemically resistant gloves to prevent skin exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Component: **1-Octanol**

Appearance and Odor: Clear liquid. Colorless. Pungent odor.

Relative Molecular Weight: 130.23 g/mol

Molecular Formula: $CH_3(CH_2)_7OH$

Boiling Point: 194 °C (381 °F)

Freezing Point: –17 °C (1 °F)

Volatility: Not available.

Density: 0.8270 g/cm^3

Water Solubility: 0.06 % @ 25 °C

Solvent Solubility: Soluble in ether, alcohol, chloroform, mineral oils, petroleum ether, propylene glycols. Insoluble in glycerol.

Odor Threshold: Not available.

10. STABILITY AND REACTIVITY

Stability: X Stable _____ Unstable

Stable at normal temperatures and pressure.

Conditions to Avoid: Avoid heat, flames, sparks, and other sources of ignition.

Incompatible Materials: Acids, oxidizing materials, combustible materials, metal salts.

Fire/Explosion Information: See Section 5, "Fire Fighting Measures".

Hazardous Decomposition: Oxides of carbon.

Hazardous Polymerization: _____ Will Occur X Will Not Occur

11. TOXICOLOGICAL INFORMATION

Route of Entry: X Inhalation X Skin X Ingestion

Toxicity Data: Rat, Oral LD_{50}: > 3200 mg/kg
Rat, Inhalation LC_{LO}: 5600 mg/m^3/4 h

Health Effects (Acute and Chronic): See Section 3: "Hazards Identification" for potential health effects.

12. ECOLOGICAL INFORMATION

Ecotoxicity Data

Fish Toxicity: Fathead minnow (Pimephales promelas) LC_{50} (mortality): 13 000 µg/L (96 h)

Invertebrate Toxicity: Water flea (Daphnia magna) EC_{100} (abundance): 71 mg/L (24 h)

Algal Toxicity: Blue-green algae (Anacystis aeruginosa) (population growth): 1900 µg/L (8 h)

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose in accordance with all applicable federal, state, and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOTand IATA: This material is non-hazardous for shipping purposes. IATA does NOT regulate combustible liquids with a flash point above 60.5 °C, and DOT only regulates combustible liquids in bulk packages, 49 CFR 173.150 (containers with a capacity > 450 L (119 gal).

Canadian Transportation of Dangerous Goods: No classification assigned.

Land Transport ADR and RID: No classification assigned.

Maritime Transport: No classification assigned.

15. REGULATORY INFORMATION

U.S. Regulations: CERCLA Sections 102a/103 (40 CFR 302.4): Not regulated.

SARA Title III Section 302 (40 CFR 355.30): Not regulated.

SARA Title III Section 304 (40 CFR 355.40): Not regulated.

SARA Title III Section 313 (40 CFR 372.65): Not regulated.

OSHA Process Safety (29 CFR 1910.119): Not regulated.

SARA Title III Sections 311/312 Hazardous Categories (40 CFR 370.21):

ACUTE:	Yes.
CHRONIC:	No.
FIRE:	Yes.
REACTIVE:	No.
SUDDEN RELEASE:	No.

State Regulations: California Proposition 65: Not regulated.

CANADIAN Regulations
WHMIS Classification: Not determined.

EUROPEAN Regulations
EC Classification (assigned): Not determined.

National Inventory Status
U.S. Inventory (TSCA): Listed on inventory.

TSCA 12(b) Export Notification: Not listed.

16. OTHER INFORMATION

Sources: MDL Information Systems, Inc., MSDS *N-Octyl Alcohol*, 15 December 2003.